

# Plan's approach to water and environmental sanitation

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Corporate Planning, Monitoring and Evaluation	

# Abbreviations

CPME	Corporate Planning, Monitoring and Evaluation
EMS	Environmental Management System
IDP	Internally Displaced Person
IEC	Information, Education and Communication (now more commonly referred to as 'behaviour change')
NGO	Non-governmental organisation
PHASE	Personal Hygiene and Sanitation Education
SMART	Specific, Measurable, Achievable, Realistic and Time-bound
UNICEF	United Nations Children's Fund
WES	Water and Environmental Sanitation
WHO	World Health Organization
WSSCC	Water Supply and Sanitation Collaborative Council

# Glossary of terms

Community management	Control by the community over the decision-making process in program design, implementation, operation and maintenance
Environmental sanitation	Issues like safe excreta disposal, medical waste management, wastewater management, site drainage, personal hygiene facilities, vector and pest control and food hygiene
Hardware	Physical program components, such as wells or latrine buildings
Impact	The extent to which a program or project contributes to lasting changes in the community where it is implemented
Output	The physical product of a program or project
Personal hygiene facilities	Hardware related to personal hygiene, such as hand-washing facilities or laundry facilities
Safe drinking water	Water that is free from bacteriological and chemical contamination
Scaling up	To serve more people with sustainable water services
Software	Training, community management (both financial and technical aspects) as well as education and promotional material on behaviour changes

# Plan's Vision and Mission

## Our Vision

Plan's Vision is of a world in which all children realise their full potential in societies that respect people's rights and dignity

## Our Mission

Plan strives to achieve lasting improvements in the quality of life of deprived children in developing countries through a process that unites people across cultures and adds meaning and value to their lives by:

- enabling deprived children, their families and their communities to meet their basic needs and to increase their ability to participate in and benefit from their societies
- building relationships to increase understanding and unity among people of different cultures and countries
- promoting the rights and interests of the world's children



# Introduction

Safe water and environmental sanitation services (by which we mean solid and liquid waste facilities, vector and pest control as well as food hygiene) are vital for people's dignity and health, and are especially important in ensuring the healthy development of children. The lack of such facilities is responsible for over two million child deaths each year.

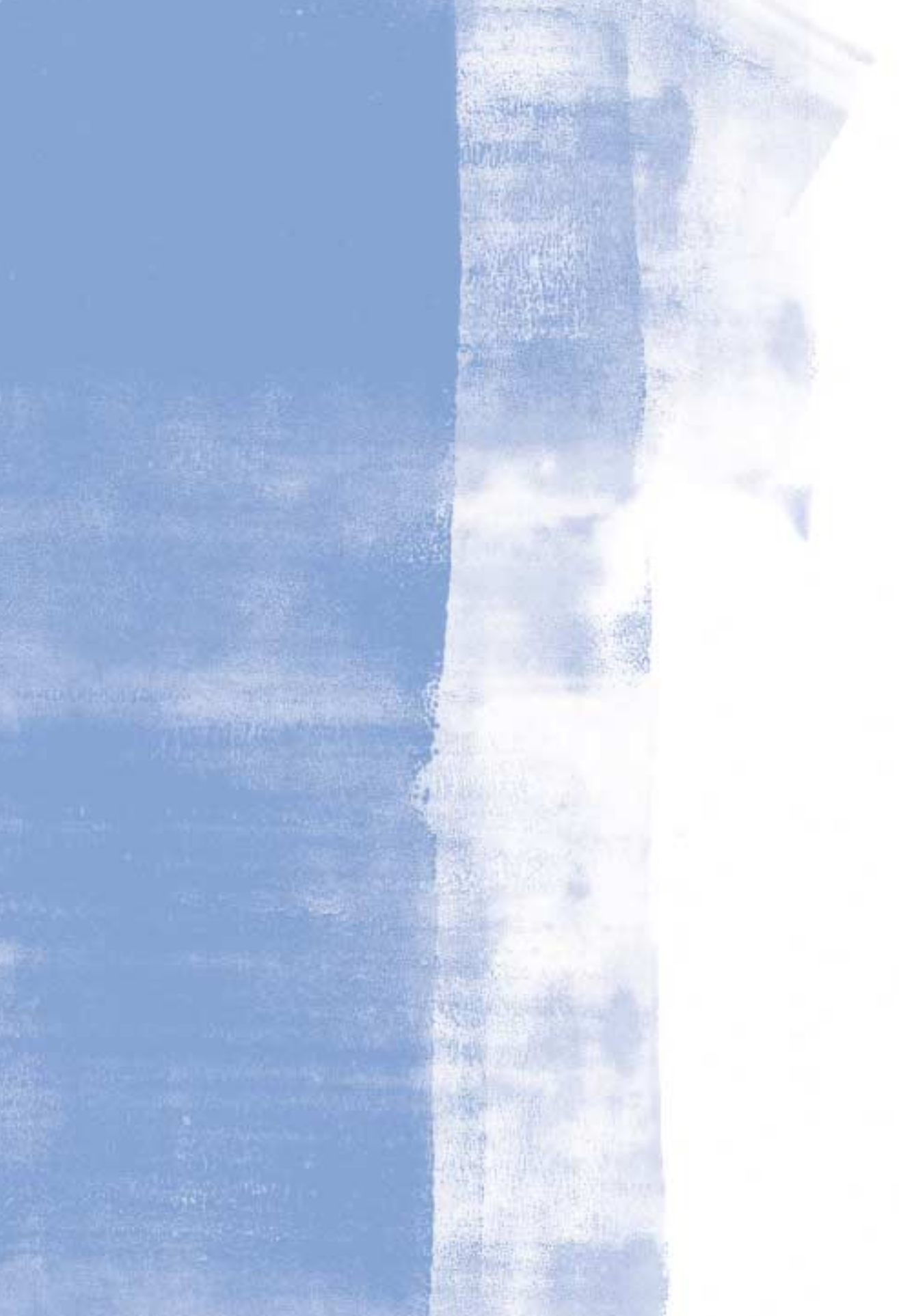
This working paper aims to support Plan staff by looking at the whole issue of water and environmental sanitation and enable the organisation as a whole to direct resources in an integrated and cost-effective way. By doing so, we will be able to play a crucial role in achieving the Millennium Development Goals and in the 'International Decade for Action, Water for Life (2005–15)'.

There is a clear link between poverty, poor water quality and a lack of environmental sanitation facilities. This working paper aims to position Plan's approach to water and environmental sanitation within the context of the broader international development goals and within Plan's own commitment to child centred community development. From this standpoint, it then looks in more detail at the main challenges linked to water and environmental sanitation and in each case details how Plan staff can put our approach into practice and the main issues to bear in mind while doing so. Further important issues to consider are also included.

The underlying theme of this paper is that the long-term sustainability of water and environmental sanitation programs is interrelated with and dependent on community development and institutional support. It aims to address the issues systematically and in such a way that both technical and non-technical staff can develop programs in line with child centred community development. It will be useful to all those involved in water and environmental sanitation activities, from frontline staff and country advisers to technicians and country management teams.

By all of us putting the information contained in this working paper into practice, we can ensure that communities participate in the decision-making process in all projects and programs. In other words, the communities will be empowered and the individual project or program will be more sustainable in the long-term.

We have tried to make this working paper as accessible to all levels of staff as possible. It is, however, just the beginning; we need your feedback and your examples of work in practice so that we can continue to share experiences and learn from them.





## Executive summary

Safe water and environmental sanitation services (by which we mean solid and liquid waste facilities, vector and pest control as well as food hygiene) are vital for people's dignity and health, and are especially important in ensuring the healthy development of children. The lack of such facilities is responsible for over two million child deaths each year.

There is a clear link between poverty, poor water quality and a lack of environmental sanitation facilities. Poorer communities are more likely to drink water that falls below World Health Organization guidelines on acceptable mineral and bacteriological levels, and less likely to have adequate environmental sanitation facilities. Contamination of water sources or contamination through transportation and storage is commonplace. Additionally, excreta disposal facilities, wastewater drainage, management of household rubbish and of medical waste are frequently inadequate. If hygiene facilities and practices are also inadequate, either through water shortage or low awareness, then faecal-orally transmitted disease is more likely. Poorer communities are often unhealthy environments in which pathogens are more likely to thrive.

Poorer communities also cope with the consequences of increasing demands on fresh water supplies as a result of population growth. The depletion of water supplies is a significant risk to many people, while poor environmental sanitation and water management contaminates aquatic ecosystems and further reduces the amount of available safe water. In areas of severe water shortage, people are compelled either to buy potentially unsafe water from vendors or to spend significant periods of their day collecting water from distant sources.

In a global context of climate change, deforestation and other land-use changes, there has also been an increase in the frequency and impact of natural disasters, which have a disproportionately severe impact on people living in poverty. Poorer people are more likely to live on marginal land, lack adequate infrastructure and are less likely to receive support to help them prepare for disasters. Natural disasters often destroy what limited infrastructure there is, disrupting or contaminating water supply, destroying environmental sanitation facilities and affecting hygiene services. In the most serious cases, a disaster can result in a rapid and substantial movement of people, placing additional stress on neighbouring facilities and leading to a general breakdown of hygiene and sanitation practices.

In communities with unsafe or insufficient water or a shortage of environmental sanitation facilities, it is the children, especially the youngest and those from the poorest families, who are particularly at risk. Where disease is commonplace, whether malaria, dengue or gastric illnesses, it is the youngest who are the most vulnerable. In areas of water shortage, it is often the children, and most usually the girls, who are sent to fetch water from distant sources. This work can expose them to dangers along the route and curtails their time for development through study and play.



Adam Hinton

As part of our commitment to make lasting improvements in the quality of life of children, Plan's staff work in close cooperation with communities in 45 countries to increase access to water that is free from bacteriological and chemical contamination. We also work together with communities to improve facilities for safe excreta disposal, medical waste management, wastewater management and the control of areas where vectors and pests may breed. Together with communities, Plan's staff address issues of hygiene that can contribute to the spread of disease.

With appropriate support from Plan's staff, communities select the type of technology most appropriate for increasing access to safe water, taking into account cost and maintenance considerations. Alternatively, they can determine how existing water supplies can be made cleaner. In areas of water shortage, Plan's staff work with communities on simple low-cost approaches, such as rainfall harvesting or, where necessary, advocate the importance of safe water for human consumption to water authorities that are trying to balance competing domestic, agricultural and industrial demands.

Plan's staff also work with communities to identify current sanitation challenges and to generate demand for improved facilities. As with the provision of safe water, community members are actively involved in the selection of technical options as they play a critical role in the operation and maintenance of new infrastructure. Local knowledge is vital to ensure that new hardware is culturally and environmentally appropriate. The same principle applies for hygiene: the focus of activities should be on generating demand for such facilities through raising awareness.

As a child centred organisation, Plan devotes particular attention to the school environment. Ensuring that children have access to safe drinking water and hand-washing facilities will help ensure that they remain in good health to perform well in their studies. Lessons learned in school about hygiene and the importance of a clean environment are often transferred to the community and eventually passed on by children to their own children in years to come.

Plan is concerned with sustainable development but, since many of the countries where Plan works are vulnerable to them, we require mechanisms to prepare for and respond to natural disasters and civil conflict. The impact of disasters can be greatly reduced if communities are helped to prepare for such events and infrastructure is designed to withstand them.

All Plan's work is aimed at providing communities, families and children with the skills that will enable them to become more active citizens, capable of meeting their own development needs through social participation. If a community receives the proper support, we believe that they can manage their own development process in a way that gives equal voice to girls, boys, women and men. Plan strongly believes that this is the route to creating a world in which all children can realise their full potential.



School hygiene program

## The international context and Plan's approach to water and environmental sanitation

**Over two million children die each year from diseases caused by poor quality drinking water and inadequate sanitary facilities<sup>1</sup>. Plan is committed to working with communities in developing countries to ensure that a child's environment is as healthy as possible. This work includes ensuring access to safe drinking water, safe excreta disposal, solid waste management, wastewater management, site drainage, medical waste management, personal hygiene facilities, vector and pest control, food hygiene and hygiene behaviour changes.**

Throughout the world, children face significant threats to their health from an array of environmental hazards. We all have a shared responsibility to enable children to grow up in a safe and healthy environment, which includes clean air, safe drinking water, adequate food, healthy homes, child care facilities, schools and health centres.

Safe water and access to environmental sanitation services are vital for the dignity and health of all people and are especially important in ensuring the healthy development of children. The right to safe water and environmental sanitation services is an integral part of the 1989 Convention on the Rights of the Child: Article 24 recognises the child's right to the highest attainable standard of health through the provision of adequate nutritious foods, safe drinking water and adequate sanitation; Article 29 recognises that the education of the child shall be directed to the development of respect for the natural environment.

Our long-term goals are consistent with internationally agreed targets during the past 15 years, for a summary of these see Annex A:

- Rio Statement Agenda 21, chapter 18
- Dublin Principles
- Millennium Development Goals
- Vision 21
- Johannesburg Declaration, World Summit for Sustainable Development

Yet some 2.2 million children die every year from diarrhoeal-related diseases<sup>2</sup>. The majority of these diseases are contracted through poor quality drinking water, inappropriate hygienic behaviour or inadequate environmental sanitary facilities. This rate is equivalent to one child dying every 15 seconds and these deaths represent approximately 15 per cent of all deaths of children under the age of five in developing countries<sup>3</sup>.

Although the percentage of people with access to some form of improved water supply and excreta disposal facilities rose during the 1990s, there is still considerable need: at the beginning of 2000, over a billion people lacked access to an adequate and safe water supply and around 2.4 billion people still lacked basic safe environmental sanitation facilities<sup>4</sup>. The majority of these people live in Africa and Asia, predominantly in rural areas<sup>5</sup>. The population living in rural areas have to work very hard for their water, often fetching it from distant and polluted sources. This task is usually performed by women and children, which leaves them less time for other productive activities, such as income generation, housework or attending school.

Wherever we have development programs, Plan has undertaken initiatives to prioritise access to safe water, appropriate environmental sanitation services and hygiene behaviour changes. We believe that local people and communities should actively participate in the process of identifying water and environmental sanitation challenges. This participation should be a continuous process throughout the project/program cycle in activities such as need assessment, technical choice, planning, implementation, monitoring and management systems. Through this, our aim is to facilitate the empowerment of the communities and to ensure the long-term sustainability of the projects/programs.

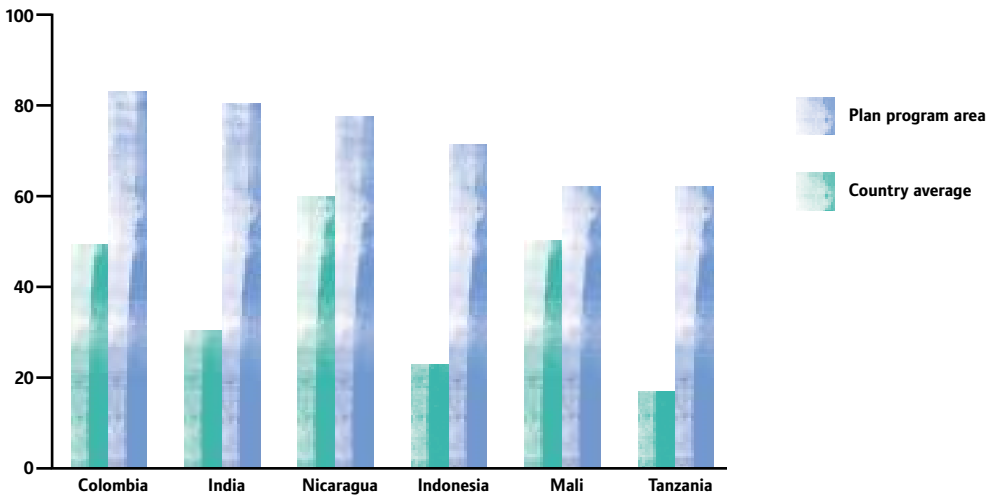
As well as the technical aspects of improving water supply and environmental sanitation, Plan also uses information, education, promotion and communication activities and management capacity building to ensure that communities are able to manage those systems in the future. At the same time, Plan encourages and facilitates links between the communities and appropriate institutional support to make sure that the communities are not left on their own to address all key issues.

<sup>1-4</sup> Global Water Supply and Sanitation Assessment 2000 Report: WHO, UNICEF and WSSCC.

<sup>5</sup> Global Water Supply and Sanitation Assessment: WHO, UNICEF and WSSCC.

Plan operates in some of the most deprived areas of the world. The charts below give some indication of the low levels of access to safe water and environmental sanitation facilities:

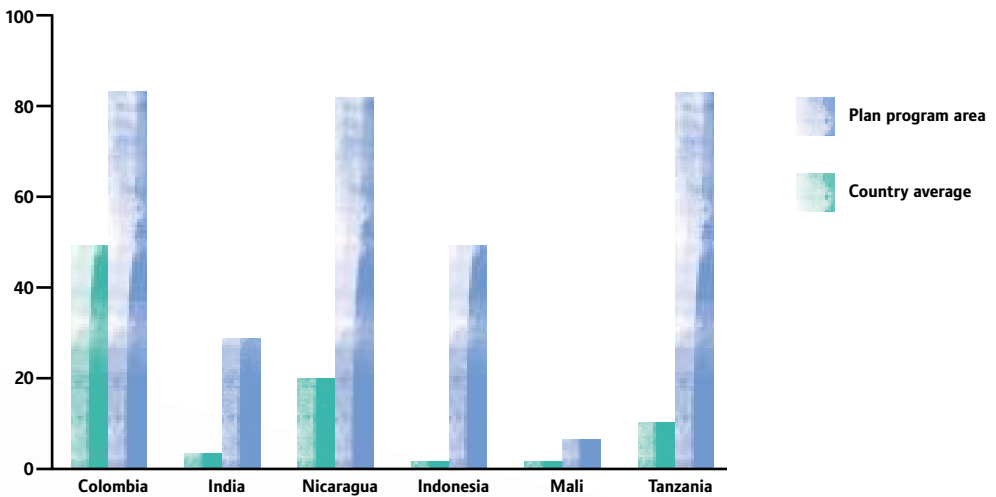
### Percentage of population with access to safe water



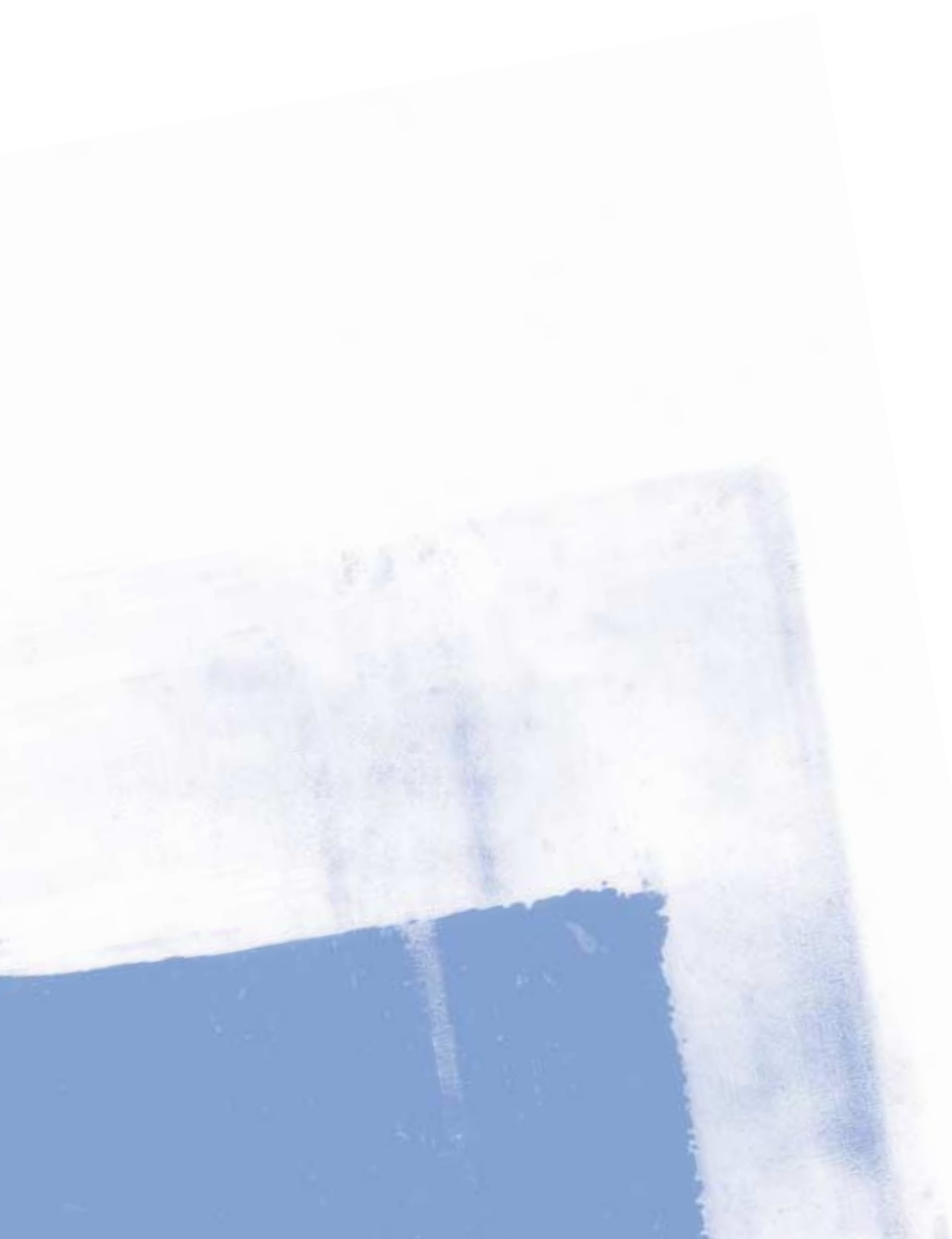
National level data taken from UNICEF's 2000 'State of the World's Children' and shows a trend average between 1990 and 1998. Plan data is from a CPME baseline taken in the program areas it works.

The statistics on access to sanitation are even worse:

### Percentage of population with access to adequate sanitation



Data based on UNICEF's 2000 'State of the World's Children' and Plan CPME data.



# The basic foundations of Plan's water and environmental sanitation work

## Access

Children and their communities should have access to and be able to use safe drinking water all year round as well as having access to basic sanitary facilities.

## Integration

All programs should address water and environmental sanitation and hygiene behaviour changes in a holistic manner in order to maximise impact. To improve their impact and long-term sustainability, water and environmental sanitation programs should be integrated with the health, education and livelihood sectors.

## Empowerment and sustainability

Children, their families and their communities should have the opportunity for empowerment through maximising their opportunities to participate in all stages of the program/project cycle. A program/project intervention should be designed to include financial mechanisms for cost-sharing/recovery and for payment of services by users. The possibility of sustainable development is enhanced if the agency invests time and resources in capacity building community and partner institutions on technical and financial management as well as on conflict resolution.

## Gender equity/equality

By mainstreaming gender consideration, water and environmental sanitation programs and projects should contribute to the eradication of gender-based inequities and should allow for regular and continuous input by women, men, girls and boys. An enabling environment should be created in a way that gives equal opportunity to all stakeholders to be part of the decision-making process in water and sanitation programs/projects.

## Technological choice

Technical standards for water and environmental sanitation programs should be set so that relevant and appropriate technology (with gender sensitivity) is incorporated into system design. Participation in the design process should be fundamental to ensure that the most appropriate technology is chosen. Therefore, communities with which Plan works should be able to make an informed choice from a range of technical options and with full awareness of their respective technical, maintenance and financial implications. The project design process should be children and women friendly in relation to time, space, privacy and roles.



Community mapping exercise in Sri Lanka

## Community capacity-building

Plan should facilitate the strengthening of the long-term capacity of all community members to manage their water supply and basic sanitary services so that assets created can be maintained, operated and replaced. Plan should facilitate technically, financially and socially sustainable programs. Local capacities should be built so that a community can manage its project/programs and to link it with structures outside the community (institutional support) such as local authorities at higher levels or national NGOs that can offer support to the community management activities. This means more than just forming community organisations.

## Environmental sustainability

Program design should ensure that there is no negative impact on the environment of the community covered by the program or that of neighbouring communities. Plan should facilitate the communities to ensure that, where possible and relevant, biodiversity is maintained and enhanced and the depletion of non-renewable resources is minimised.

## Institutional learning

Plan emphasises the importance of institutional learning for itself and its development partners. Program work should therefore be based on lessons learned from best and promising practices.



## Indigenous knowledge

Messages, processes and methodologies used in information, education and communication (IEC) or behaviour change programs should be based on local knowledge, insights and practices. They should be appropriate for the various sections of the community. Education and promotion activities should be conducted simultaneously to make sure that what is learned is put into practice.

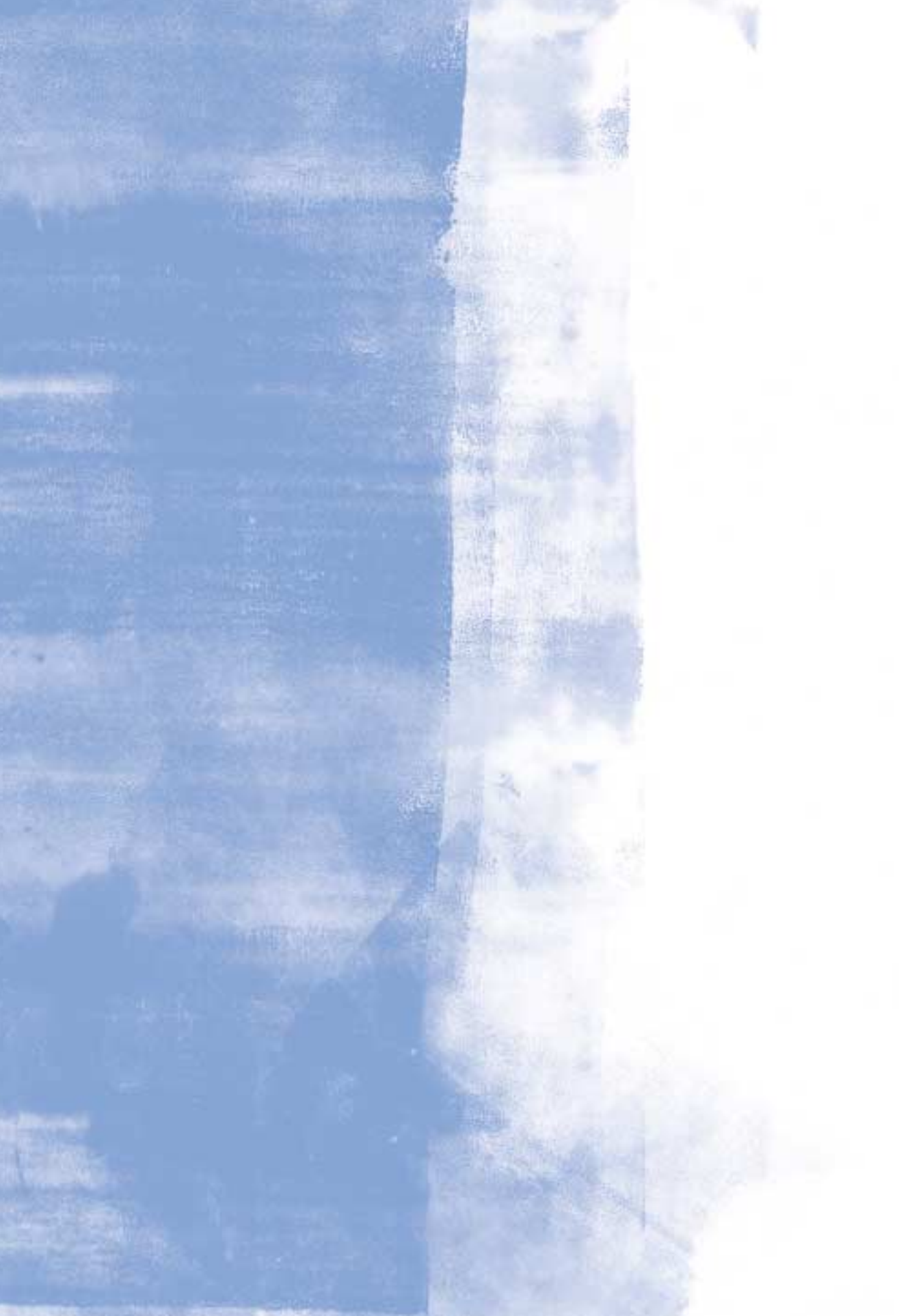
## Advocacy

Parents, children, teachers, community leaders and policy makers need and require education about the unique vulnerability of children.

- at the community level, Plan ensures that people are aware of their rights, children's rights, existing legal procedures and policy
- at the national level, Plan advocates that governments establish protective standards for children that recognise their unique developmental, biological and behavioural vulnerabilities. All children and adults have the right to know about proven and potential hazards to their health and safety
- at the regional level, Plan seeks to ensure that international aid programs, national water policies and regional agencies vigorously address the challenges that contribute to childhood diseases. For example, to prevent acute respiratory and waterborne diseases, children must have access to clean water, clean air and nutritional food, so these fundamentals must be a key part of any aid plan
- at the global level, Plan believes that the health of children worldwide is intrinsically linked to the health of our water sources. Environmental hazards and pollution know no boundaries. International collaboration, whenever possible, should be sought and encouraged

## Partnership and networking

The available resources could be maximised among various agencies by sharing and disseminating knowledge, lessons learned, promising practices and action research work in the water and environmental sanitation sector. This is based on the principle that relationships between agencies can create a more powerful platform to influence policy and transform institutional structures to be more pro-poor, participatory and child-friendly. Plan should therefore take a more active facilitating role in establishing partnerships and creating networks at all levels (community, local, national, regional and global).



# Water and environmental sanitation challenges and Plan's approach

Imagine a small village in Sierra Leone, an urban slum community in Bangladesh or a low-income family home in El Salvador. Despite the immense geographical and cultural differences between each of these places, people living there face many similar challenges. In most cases, there are high levels of waterborne and water-washed disease among those members of the community living in greatest poverty and children under five. Levels of education are likely to be low compared to the national average and household economies almost certainly bring in little more than subsistence income. These challenges increase the likelihood that the children of families living in poverty will grow up to be adults living in poverty.

Low quality water or inadequate levels of water together with poor environmental sanitation and hygiene behaviour practices are all instrumental in limiting people's capacity for development. In 1998, for example, 308,000 people died as a result of conflict in Africa but more than two million died of diarrhoeal disease (WaterAid, 2000). This is why access to water supply and environmental sanitation services are human rights, meaning that they are recognised to be significant issues without which people's capabilities and potential are limited.

Some of the common challenges facing poorer communities in terms of water supply, environmental sanitation and hygiene behaviour and the developmental challenges that emerge as a result are detailed in this section. Each is followed by a summary of Plan's approach to addressing the challenge.

# Challenge

## People living in poverty do not have access to safe water and/or may not have easy access to sufficient quantities of water

The World Health Organization has developed standard guidelines on the acceptable levels of minerals and bacteria for safe drinking water. Yet many people in developing countries get their drinking water either from polluted/contaminated sources or as safe water transported or stored in such a way that it is no longer safe by the time it is consumed. In Bangladesh, for example, the presence of arsenic in water from tube wells reduces life expectancy, while high levels of fluoride in China's drinking water have been associated with the softening of bone tissue and increased levels of rheumatism. Iron and manganese are among other major mineral contaminants that cause challenges for people living in poverty. Bacteriological contamination, such as *E. coli* and other faecal coli forms, are a common challenge when water supplies are unprotected from animal or human waste. Surface water, such as pools and ponds in rural areas or channels running through slums, is susceptible to this type of contamination. Waterborne disease transmission, which occurs by drinking contaminated water, is the principal route for cholera, typhoid, diarrhoea, viral hepatitis A and dysentery.

The overall result of drinking contaminated water is simple: people fall sick and may die. Children are particularly at risk, especially those under the age of five who have just been weaned and are exposed to environmental contaminants for the first time. Repeated bouts of diarrhoea, skeletal fluorosis or arsenic poisoning have a negative impact on children's physical development. Equally, children who are sick or caring for sick siblings cannot attend school. This means that, in addition to the higher morbidity and mortality rates found among some communities, educational underperformance is also a risk.



Sohrab Baghri

People collecting dirty water in Tanzania

Today, 470 million people live in regions with severe water shortages. This figure is predicted to increase to three billion by 2025 (WaterAid 2000). In some particularly arid areas, such as Sahelian countries, accessing water can often be quite labour-intensive, particularly during dry seasons. As a result, people usually either buy their water from vendors (apart from the expense, they have no guarantee that this is safe water) or spend significant periods of their day collecting water from available sources (very often, this burden falls on the women and children). Women in rural areas of Africa and Asia, for example, collect water from sources six kilometres on average from their homes. Beyond the fact that the heavy load they carry on their back or head will affect their health, this has several consequences: for women, there is less time for productive labour, which has a negative effect on household economy, and less time for childcare, household tasks and relaxation; for children, usually girls, there is less time for school, which means they are less likely to gain the qualifications that could help them move out of poverty as adults, and less time for play.



Sohrab Baghri

After walking for more than an hour, people are collecting unsafe water for domestic use in Tanzania

With insufficient water, it is far more difficult for people to keep themselves and their domestic environments clean and hygienic. Skin and eye infections are all potential risks in such situations and there is increased likelihood of faecal-oral transmission of disease.



Sohrab Baghri

Women and children often spend many hours queuing for water

# Plan's approach

## Working with the community to facilitate access to safe water

Increasing access to safe water can be achieved by various means: installing pipelines for household connections, providing public stand-posts, and less labour-intensive methods of water collection, such as a donkey and cart.

In each case, the technological options should be presented and discussed with the community because it will be responsible for the maintenance and operation of the system. There is little value in installing a complex water system if the community is unable to pay for its operation, maintenance, expansion and replacement. A water system requires management by community members and one of their tasks is the collection of tariffs to support its operation, maintenance and possible expansion in the future. If these tariffs are set too high, communities will be unable to pay them.

Where water is contaminated or has a high mineral content, appropriate treatment needs to be considered. Potential water contaminants, either mineral or bacterial, must therefore be identified before the start of the technical design process. A comprehensive analysis at the beginning of a program might suggest the need to find an alternative source. If this is not possible, however, treatment will be required. Depending on the contaminants at the source, there is a range of technical options for treating water. For example:

- aeration (exposing the water to oxygen) could assist in the process of removing excess iron
- sedimentation involves letting water settle before a filtering process to separate out impurities
- slow or rapid sand filters are one way of removing both mineral and bacteriological impurities
- other processes like disinfection with chlorine kill living micro-organisms



Sohrab Baghri

Community meeting with children to discuss the water and environmental sanitation issues in Mali



Sohrab Baghri

Monitoring water quality is a key issue in Peru

Beyond water treatment at the source, it is important to ensure that water remains safe up to the point when it is consumed (safe water at the cup). This means addressing water safety in transportation and storage. Where people collect their drinking water from communal points, training should be conducted on cleanliness during water transportation. This means ensuring that:

- the water vessel is clean
- it is possible to close the vessel to protect the water from dust and insects
- hands are clean when collecting water
- the containers preferably should have a tap outlet to prevent having to dip potentially dirty hands or utensils into them to collect the water

Ensuring safe water at the cup also means that household treatments should be considered. Simple procedures such as boiling, chlorination, filtration and solar disinfection can all ensure that household members consume safe water and avoid harmful mineral or bacterial contaminants.

Sometimes, however, the challenge is less about the water quality and more about the access that people have to that water. People living in the greatest poverty often have inequitable access to community water supplies. The community management should therefore be assisted in the decision-making process so that all the stakeholders' needs and demands can be taken into consideration. Steps must be taken to ensure that marginalised people are brought into the process throughout the project cycle.

# Challenge

## The depletion of water sources

The challenges that many people face in accessing sufficient and safe water and adequate environmental sanitary services have to be seen in the context of rapid population growth and climatic change. These will vary globally and, in some cases, water availability will increase through rain harvesting, such as in South East Asia, and this will also impact on water quality. Land-use changes are equally important in influencing the availability and quality of water. There is now more pressure on fresh water resources than ever before as growing demands from industry, agriculture and cities have had an adverse impact on the quality and quantity of our sources. Poor water and environmental sanitation management has resulted in the contamination of aquatic and terrestrial ecosystems as additional waste is created. Over-extraction of surface and groundwater sources will have a negative impact on the environment and increasing compounding consequences on the future generations. The depletion of water sources is associated with growing levels of salinity in fresh water supplies (primarily in coastal areas) and with land erosion (subsidence) as underground supplies dry out.



Sohrab Baghri

Collecting water from sources that are far away and difficult to reach are an extra burden for poorer families in the Philippines

## Plan's approach

### Ensuring that future generations have access to sustainable, sufficient and safe water resources

Any water supply program must ensure that resources are not over-exploited. Water resource management is usually conducted at national or district levels because water sources usually serve numerous communities. Water authorities should determine how much could be allocated to agriculture, industry,



Sohrab Baghri

Renewable energy: solar panels for supply of electricity to pump water in Peru



human consumption and sanitation in such a way that sources are replenished naturally. Integrated water resource management is part of the solution to many of the challenges highlighted and needs to be addressed in a systematic way.

Every generation has a responsibility to ensure that the available resources are not polluted or depleted and do not have a negative impact on the health of beneficiaries, particularly

children. Therefore, regular environmental impact assessments should take place to examine the long-term results of sourcing water supplies. Extracting too much water too rapidly from deep sources, for example, might result in higher mineral concentrations in remaining supplies; this is something an impact assessment would help identify, allowing corrective steps to be taken.

**In 2000, Plan Ecuador commissioned a study to explore the environmental impact of projects. This revealed one project where sanitary facilities had been left unmonitored and the area was in danger of soil and subsequent groundwater contamination. As the groundwater was the principal water supply for the community, contamination could have resulted in health problems despite widespread understanding of health and hygiene issues. As a result of the study, Plan introduced an Environmental Management System (EMS) to improve the quality of the**



Construction of reservoir in the Philippines

**environment in communities and schools by monitoring and limiting the negative environmental implications of projects. Necessary policies and organisational structure are being developed to integrate environmental issues, staff are being equipped with the appropriate skills and tools to include the environmental variable in programs, and procedures and criteria are being developed for project assessment, planning, implementation, monitoring and evaluation that take the environment into account. EMS is helping to improve environmental practices in schools and communities, build Plan's skills and knowledge, and improve the environmental performance of all Plan's programs in Ecuador.**



Promotion of rainwater harvesting in Ghana



Unsafe disposal of medical waste in Peru

## Challenge

### People may live in environments that are not clean and safe

Communities often lack the environmental sanitation facilities required to keep their environment clean and safe. For example:

- without safe excreta disposal facilities, people may defecate in open areas or into water sources
- without proper collection, transport, disposal, recycling and incineration facilities, household rubbish will create an ideal environment for contamination of water resources
- in some cases, medical waste could be mixed up with general waste and left to accumulate at the compound of the health centres
- where there are no wastewater or drainage systems, pools of stagnant water can accumulate and become a breeding ground for vectors

In some urban environments, such as slums, population density exacerbates these challenges and environmental contamination is especially visible.

Both surface and underground water sources can become contaminated by this pollution. Stagnant water pools are breeding grounds for mosquitoes, while excrement and household rubbish attract flies and rats. Disease can spread rapidly, with malaria, dengue and gastric illness common among many communities based in such environments. Children, particularly the very young and especially those from families living in the greatest poverty, are most at risk. This is both because their immune system is not yet strong enough to cope with such disease prevalence and because their parents are unable to afford the necessary medical treatment if they fall ill. Research in Karachi, for example, indicated that people who live in areas without adequate sanitation and who have no hygiene education spend six times more on medical treatment than those with sanitation facilities.

# Plan's approach

## Working with communities on environmental cleanliness

The overall purpose of environmental sanitation work is to improve community health through reducing pollution and minimising the spread of disease. The first step towards achieving this goal should be the identification of challenges with stakeholders: holding discussions with men, women, boys and girls to see what they think are the significant issues. At the same time, any potential challenges that might arise as a result of future programs should be identified. Opening a community clinic, for example, will lead to medical waste, income generation activities could result in more rubbish, and supplying water will lead to issues of wastewater.

The overall principle that should be adopted in environmental sanitation activities is to work very closely with community members throughout the process. Given that, for example, individual behaviour can have a detrimental impact on the cleanliness of the community environment, it is important to ensure that any work is done in a way that fosters demand for sanitation facilities. In addition to awareness-raising activities, another participatory technique is encouraging the active involvement of community members in the process of choosing the technical options for new infrastructure. This means that issues of cost, operation and maintenance can be discussed from the very beginning of the project and could ensure that the proposed intervention is locally suitable, culturally sensitive and appropriate for the local environment, and that community members are aware of all related financial issues.

- **Safe excreta disposal**

The most common challenge to be addressed in an environmental sanitation program is the issue of safe excreta disposal. Whatever system is developed, and there is a considerable range of technical options available, it should avoid surface and underground pollution. Most commonly, this means sealing the pit with concrete slabs and designing some access mechanism for emptying the pit when it is full. A latrine should also be designed with all of its users – particularly children – in mind to ensure that everyone is

physically capable of using it. It is imperative, for example, that 'hole-in-the-ground' latrines are not so big that children could fall in. It is very important that the families can make informed choices on technology selection. Hygiene issues also need to be considered, such as whether there is water for someone to clean their hands and other body parts after using the latrine.



Sahab Bagiri

Latrines in Peru, made with local materials which are cheap and inexpensive



Garbage disposal at a primary school in Peru

### ● Rubbish and domestic household waste management

Household and commercial rubbish is also a common challenge. All community members should be encouraged to get involved in recycling much of their physical waste, such as using organic matter in composting or selling metals and plastics to dealers. What cannot be recycled should be collected together and buried in a remote location where it cannot pollute the environment; burning, which can lead to carbon emission, should be avoided. In an urban area, it is important to work closely with the local authority to organise who will collect the community's rubbish, where it will be taken and how it will be disposed of or recycled.

### ● Medical waste management

Medical waste refers to any rubbish such as used sharps (syringes, blades and so on), bandages and swabs. The extent to which this is a challenge depends very much on the size of the health facility but general good practice demands that medical waste must always be kept separate from household and commercial waste. This is due to the fact that a number of people in developing countries, many of whom are children, make their living from searching rubbish dumps for recyclable materials. The hazards that used medical products pose to their health cannot be overestimated.



Medical waste disposal at a hospital in Bolivia

As well as being kept separate, medical waste needs to be sorted and segregated into various types:

- materials like swabs, bandages and other combustible materials can be incinerated
- used sharps should be buried in concrete sealed pits that are covered with concrete when full
- organic material such as placenta can be put into covered concrete pits and left to decompose

After segregation, they should be disposed of safely without polluting or spreading deadly diseases.



Sohrab Baghri

School garden project in Senegal to improve livelihood and food security

### ● **Wastewater and site drainage**

Most water programs result in greater volumes of water used at a community or household level. Providing more water can increase the likelihood of challenges such as wastewater and an increased requirement for site drainage. These, in turn, can lead to the pollution of fresh water supplies and damage to buildings, as well as providing breeding grounds for carriers of disease like mosquitoes and flies.

Site drainage requires facilities for water run-off. In rural areas, this is often quite simple, requiring low-cost drainage systems. In urban areas, however, the challenge can be more complex and expensive, requiring good drainage and sewage systems.

Wastewater can be dealt with in a number of ways:

- if the soil is sufficiently permeable, soak-aways can be put in place without negatively affecting underground water sources
- grease traps can separate water from detergents such as soap and the clean water can then be drained into a stream
- wherever possible, users should be encouraged to recycle treated wastewater through, for example, gardening

Implemented together, all the above activities will support a reduction in the incidence of disease carriers and pests in a community. Controlling levels of mosquitoes, rats, cockroaches and flies will help to improve the health of everyone in the community, particularly the most vulnerable such as children under the age of five.

# Challenge

## People living in poverty are more vulnerable to natural and man-made disasters

Global climate change, rapid population growth, deforestation and desertification mean that natural and man-made disasters are causing more humanitarian problems than ever before. Disasters have a disproportionately severe impact on those living in poverty and vulnerable groups as they often live on marginal land, lack adequate infrastructure to assist them to cope with emergencies and have little assistance with disaster preparedness. These populations are also usually more vulnerable to the impact of civil strife and conflict causing people to flee their homes. In recent years, the worldwide numbers of refugees and internally displaced people (IDPs) have increased.

Natural disasters often destroy what limited infrastructure there is, disrupting or contaminating water supplies, destroying environmental sanitation facilities and affecting hygiene services.

A rapid and substantial movement of people in the face of man-made or natural disasters presents particular health hazards to the most vulnerable in the settlement of temporary camps with limited infrastructure. IDPs and refugees often arrive in a weakened state at camps that rarely bear any physical relation to their former home and where they are exposed to challenges such as malnutrition, illness, inadequate shelter, limited health care, insufficient water supply and negligible environmental sanitation facilities and services.



Sohrab Baghri

This school in Ecuador had to be closed after a landslide left the classrooms 50cm deep in mud

# Plan's approach

## Preparing for and responding to disasters

Although Plan is concerned with sustainable development, many of the countries where Plan works are particularly vulnerable to natural disasters and civil conflict. In such circumstances, the aim must be to assist in stabilising the situation and immediate action should therefore be designed to meet existing and emergency water supply and environmental sanitation needs. The priority is to prevent the spread of disease through the provision of basic services and amenities.

Communities should be prepared for both man-made and natural disasters so that a response framework can be put in place when they happen. This can involve training with community management structures so that people can consider what tools, equipment, materials and human resources will be required in the event of a disaster. All preparedness at the community level should be in line with national policies on disaster response in order to take account of existing contingency mechanisms.

Plan also invests in disaster mitigation work, which could be described as activities undertaken to ensure that the level of disruption is minimised as far as is practically possible. For example, the technical design of water delivery systems requires specific modifications if they are established in areas prone to earthquake. Likewise, environmental sanitation facilities require flood protection devices if the area is liable to flooding. These types of actions minimise the effect a natural disaster has on water sources, water supply and environmental sanitation facilities (while ensuring that they don't have knock-on effects on other processes/activities/areas).



Sohrab Baghri

Children's initiative in Ghana to minimise soil erosion in school yard by planting trees

# Challenge

## Inadequate hygiene behaviour and practices

Inadequate hygiene facilities and practices are often associated with some communities in developing countries. For example:



Sohrab Baghi

Water should be safe at every stage of the water chain. In this photo the water storage at home is open to contamination from dirt, animals and insects.

- it might not be possible for people to wash their hands after defecation or before preparing food
- people may not be aware of the importance of these behaviours
- people may not have sufficient water for bathing or for keeping their clothes clean
- drinking water may be transported in vessels that are not clean or could be stored in containers where it is at risk from contamination by dirty hands or flies

The usual result of inadequate hygiene practices, whether due to a lack of infrastructure, information or knowledge, is a higher prevalence of faecal-orally-transmitted diseases. Once again, it is usually the children who suffer most, particularly those from families living in the greatest poverty and those aged less than five years.

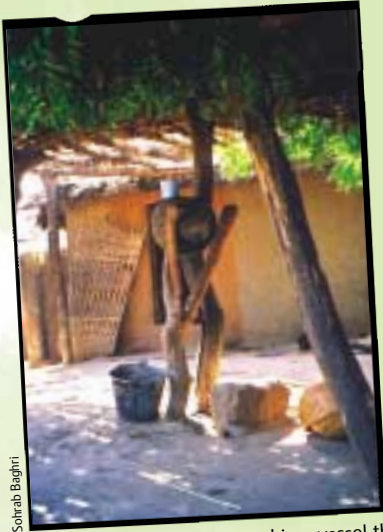
## Plan's approach

### Working with communities to improve hygiene behaviour

Any community-based water and environmental sanitation program must look at hygiene facilities and practices. To ensure good health, people need access to hand-washing, bathing and clothes-washing facilities, while issues such as the hygienic conditions of areas where food is prepared should also be addressed. It is important to remember that washing the body or clothes with soap will lead to an increase in the amount of wastewater produced, which is something programs should address.

Personal hygiene facilities alone are not enough; unless there is a demand to utilise them, they might have no significant impact on community health. Therefore, time should be spent on raising personal awareness about hygiene practices and encouraging hygiene education in schools. The messages should underline the importance of hand-washing, bathing, keeping clothes clean and preparing food in a hygienic way. Equally, all the messages should be appropriate to people's gender, culture, traditions and ages to maximise the impact of such awareness activities.





Sohrab Baghri

Storing water off the ground in a vessel that has a lid and cup reduces contamination from animals, insects and dirt.



Sohrab Baghri

Construction of a latrine in Bangladesh using local materials for sustainability

**Some communities in Bangladesh had very poor access (6 per cent) to sanitation facilities. With the advice and support of Plan, communities identified open defecation as a priority challenge. Plan helped children to draw sanitation maps of their village. The children then led a community procession to the defecation spots and held discussions there deliberately to embarrass the villagers. It was enough to make them commit to do something about it. Enthusiastic men, women and children formed sanitation committees and developed action plans to address the challenge. Demand for latrines was increased through intensive awareness-raising activities such as children's drama, folk songs, film shows and posters. Regular meetings were held to discuss the opportunities and challenges, resolve disagreements and negotiate resource-sharing between rich and poor households. The children monitored progress and updated the sanitation maps daily. In some areas, they occupied the popular defecation spots and started singing or blowing whistles whenever someone tried to go there. Through these entirely community efforts, villages of around 200 households were made free of open defecation within two months. Plan's role was as facilitator and in improving the technical capacities of community members.**

# Challenge

## **Gender discrimination and disparity**

Gender refers to the social and economic roles and responsibilities of men, women, girls and boys. A gender-sensitive approach to community development looks at the needs of each of these groups, examines their different access to resources and the different areas in which they can make decisions or exercise control. Gender is socially and culturally determined and has nothing to do with innate capabilities.

Experience indicates that the water and environmental sanitation sector has been dominated by men with a consequent bias towards their needs and issues during the project cycle. This preferential treatment and attention has often diminished the importance of women and girls as equal stakeholders. This has resulted in a slow-down in development, economic growth and poverty reduction. It is associated with unsustainable programs and inadequate impact.



Sohrab Baghri

Separate meetings can help to ensure that everyone in the community has the opportunity to express their needs

## Plan's approach

### Ensuring gender equity

Plan works towards the eradication of gender-based inequities in opportunities and in access to and control of resources.

Plan takes care to ensure that program interventions on water and environmental sanitation do not overburden girls, boys, women or men in terms of time, energy and cost by respecting people's different roles and the degree to which they have control over resources and needs. Plan also facilitates processes by which constraints on specific groups are reduced and ensures that they are given opportunities to promote their needs and issues. Plan also works to support dialogue and consultation whereby girls, boys, men and women have an equal voice in the identification, formulation and evaluation of the development intervention.



Sohrab Baghri

# Challenge

## The school environment

The school environment in developing countries deserves particular attention because very often it reproduces the community water and sanitation situation in microcosm. Many schools, for example, do not have a water supply. Without drinking water, children dehydrate during the day and find it difficult to concentrate on their lessons; it is difficult to keep the school environment clean; and the school cannot provide hand-washing facilities, which not only increases the likelihood of children becoming ill through faecal-oral disease transmission but also denies them the opportunity to learn the importance of good hygiene practices.

Few schools in these communities have adequate toilet facilities. This is often a challenge for girls, particularly as they start menses and may be reluctant to attend school or may be kept away by their guardians. In certain seasons, poor site drainage around the school might mean that the building is simply inaccessible. There is a greater likelihood of pests such as rats and disease-carriers like flies or mosquitoes. All have the same consequence: high rates of absenteeism and educational underperformance.

## Plan's approach

### Improving the school environment

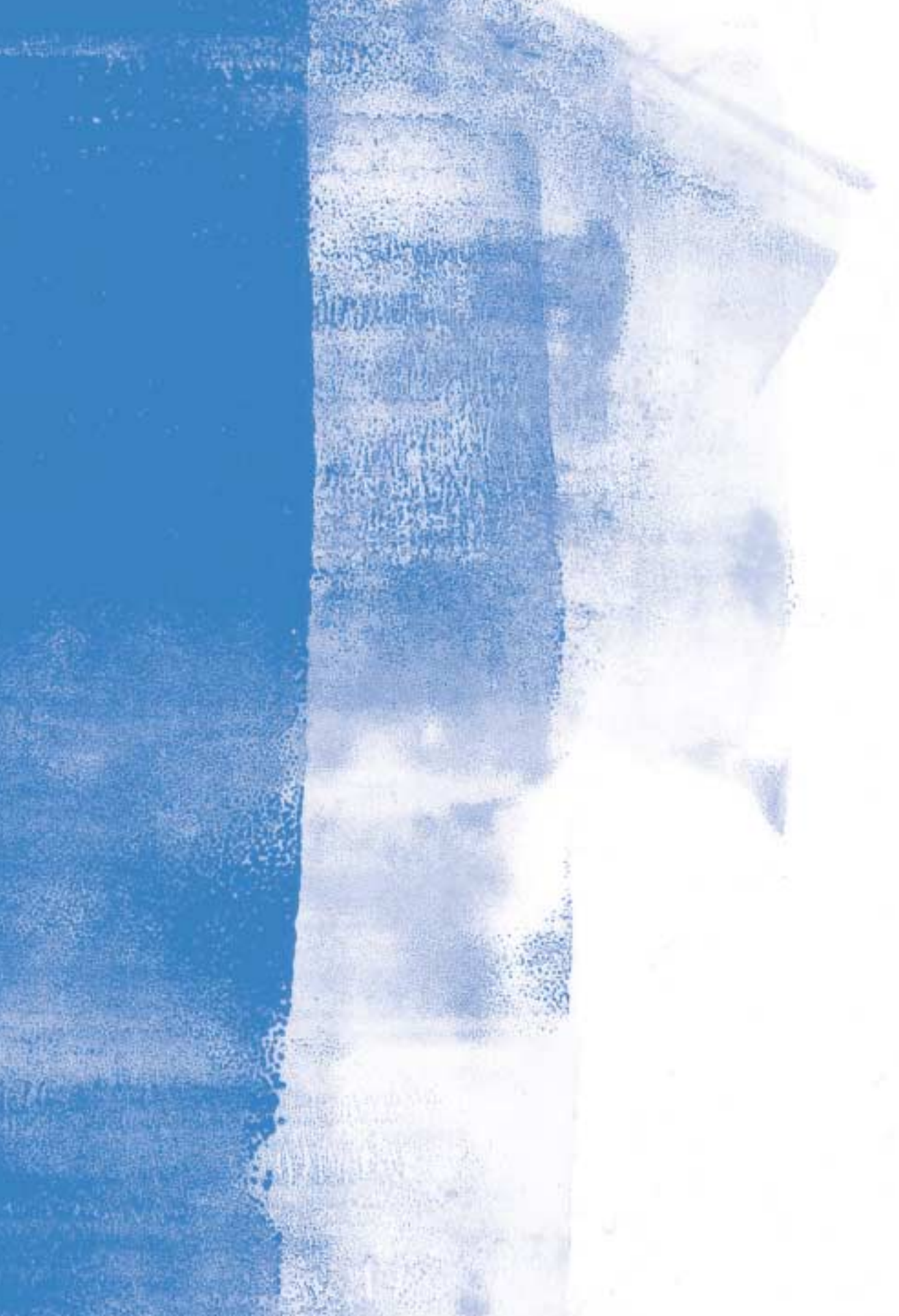
School water supply, environmental sanitation, hygiene facilities and practices need to be addressed as part of a community-level program. Facilities must always be child-friendly, meaning that latrines should be the right size and taps should be at the right level. In addition, separate latrine facilities should be provided for girls and boys to ensure privacy, safety and dignity. The school is an ideal environment to address hygiene behaviour practices through a more formal process of education than the awareness activities conducted with the wider community. Hygiene education with children does demand child-specific materials, tailored for each different age group, but the potential impact of educating children about good hygiene means educating an entire generation about the purpose and value of appropriate practices – learning that they should pass onto their own children in years to come.



Good school latrine in Peru

**Personal Hygiene and Sanitation Education (PHASE) in Peru aims to bring about a sustainable improvement in personal hygiene and sanitation behaviour through education. The project targets primary school children to build their capacity not only to take responsibility for their own health but also to be conveyers of hygiene messages to their communities. The program teaches simple personal hygiene practices, such as hand-washing after using the toilet and before handling food, as well as providing information on the location and management of latrines, waste disposal, water supplies and food storage. The project, which covers 45 primary schools, over 20,000 children and around 600 teachers, involves three strategies: an Information, Education and Communication (IEC) approach, child-to-child education through children's health groups, and encouraging parents to get involved with their children's learning. The materials used accommodate different levels of understanding by different age groups and takes account of local attitudes and practices. Materials provided for teachers include flashcards, flip charts and a teacher's guide.**

**In 2003, agreement was reached with the Ministry of Health in Peru to expand the program to all 1,200 schools in the country.**



# Further important issues to consider in water and environmental sanitation projects/programs

## 1. Lack of integration between water supply, environmental sanitation and hygiene behaviour changes

The integration of water supply, environmental sanitation and hygiene behaviour promotion has been neglected by most governments, donors and implementing agencies. The international statistics on how many people do not have access to safe water and environmental sanitation facilities is a good indicator. The allocation of financial resources has favoured water supply, which has always been given a high priority in any policy or strategic issues. However, environmental sanitation has been given less priority and financial resources, and even lower priority than hygiene behaviour promotion. As a result, the desired impact on the well-being of people and particularly of children is never achieved.

## 2. Hardware and software

Plan's approach to water, environmental sanitation, hygiene behaviour changes and promotion is a combination of 'hardware' and 'software' projects/programs:

- 'hardware' is the physical infrastructure, such as pumps, wells, latrines and laundry areas
- 'software' is the training and educational activity that demonstrate to all community members how to manage water pumps, how to run a community water committee, educational and promotional activities on hygiene and so on

Successful programs cannot be focused on hardware alone. It is not sustainable to provide a new technology or system without providing any training on how to manage it. Working together with community members on both hardware and software issues will mean that programs have a greater likelihood of positive long-term impact and sustainability.

Water management committee's training materials in Bolivia



Plan Mali is taking a holistic approach to its hygiene promotion. Its program 'Minimum Package of Activity' (MPA) has three central pillars: appropriate technological choice, participation and capacity building. Currently being piloted in 43 communities, MPA covers both hardware and software: the hardware component includes the construction of domestic laundry facilities, potable water provision, hand-washing facilities and a composting unit using appropriate technology; the software component includes training for village water and sanitation committees, developing Information, Education and Communication (IEC) materials, and a hygiene awareness campaign. Craftsmen in Kouroula village, for example, were trained to improve the design of their household water pots. The new pots are sealed and the water is accessed through a tap at the side which prevents unnecessary contamination during storage (from flies or animals) or as the water is being accessed (from unwashed hands or pots collecting the water). Plan contributed to the initial cost of the new pots while Kouroula village members took responsibility for the transport of materials and supplying the labour. The village also received hygiene education under the management of the village water and sanitation committee to ensure proper use of the new facilities and to promote behaviour change for healthier practices. Sustainability is encouraged by building local capacity through investment in training water and sanitation committees and local artisans and masons, encouraging the use of local resources (both human and technological) and encouraging other forms of community participation such as committee membership. The end result is culturally acceptable designs that can be replicated easily and scaled up across countries.

### 3. The role of the community

The role of the community in water, environmental sanitation and hygiene behaviour changes and promotion programs has changed substantially over the past 30 years. In the past, the community role was concentrated on the provision of physical labour in the construction and maintenance of hardware. Gradually, this has changed to active involvement right from the beginning in system choice, design, implementation, monitoring, evaluation and management of services. This reflects a change in the role of the community from observer to manager in the project cycle. The process of community empowerment came as a result of evidence of success and an increased trust and belief in the ability of the community to come up with a long-term solution, in partnership with development agencies, and greater insight into the factors behind sustainability.

**Current Sri Lankan government policy encourages community-managed water supply and sanitation projects. Plan is supporting the community of Delunthalamada village to organise the construction, operation, maintenance and financial requirements of such facilities. Initially, this involved building the capacity of community members to analyse the existing situation and participate in decision-making at all stages of a project. This led to the formation of a strong community organisation. Community Action Plans were based around water supply, project operation and maintenance. The villagers then entered the planning and design**



**phase: identifying what water supply was most needed and the future operation and maintenance procedures. As women are the primary water fetchers, typically spending about three hours a day collecting water, their participation was crucial in deciding the appropriate technology and management processes to be used. Community members were offered training in the construction process. Any construction challenges were identified and rectified and the operation and maintenance procedures were put in place. Plan assisted in the provision of any training needed for the smooth running of the facilities to help ensure sustainability.**

#### **4. Scaling up community management**

Wherever possible, Plan works to support the efforts of local government in improving access to water and sanitation facilities. Plan must concentrate on improving the capacity of community-based institutions. For this reason, Plan is a signatory to the statement on scaling up community management developed at The Hague in December 2001. The statement argues that:

“Community management is one of the viable solutions in economically marginal areas and where government capacity is limited.”

It also states that:

“Community management requires a change in the role of government: from implementing to providing strong support. It also requires long-term support and commitment from other actors at all levels: local, intermediate, national and international.”

The statement is in line with Plan’s commitment to improving local capacity to manage water and environmental sanitation, which is achieved through experiential training and continuous support. Through the active participation of all community members throughout the project period, it is more likely that they will be able to maintain the infrastructure and management systems once in place. Plan is committed to scaling up community management in its water and environmental sanitation programs both internally and externally.

Plan is collaborating with the IRC International Water and Sanitation Centre to conduct action research on scaling up community-managed rural water services. Beginning in Ethiopia and the Philippines, the goal is to work with communities and local regional and national stakeholders to contribute to the increased impact of water supply services through improved coverage and greater sustainability. By instilling a sense of ownership, promoting participation and sharing costs, the water supply services should be sustainable.

At a global level, Plan is an active participant in a thematic group to promote improved policy and practice around the scaling up of community management worldwide. The group includes IRC, EHP (Environmental Health Project), SKAT Foundation, WaterAid, WSSCC (Water Supply and Sanitation Collaborative Council) and WEDC (Water, Engineering Development Centre, University of Loughborough).

## 5. Sustainable livelihood approach

The sustainable livelihood approach has been used as a tool for analysis of assessing people's livelihoods in a holistic way. Therefore, applying the sustainable livelihood approach in the water and environmental sanitation sector will assist the development of an integrated and inter-sectoral analysis that shows the impact of facilities within a given developmental process. The goal is to design a system where service levels are balanced against people's domestic, productive and social demands. It will also assist to reduce poverty, especially in the poorer families and households. In addition, the major emphasis should be put on the integration of water supply, environmental sanitation and hygiene behaviours practices. The following are some of the key issues that Plan is promoting in relation to sustainable livelihood in the water and environmental sanitation sector:

- multiple productive use of water at household level
- recycling of solid waste for income generation
- utilisation of income from water tariff for other developmental purposes
- integration with learning and health

## 6. Capacity building at every level

The success of any program/project depends on the capacity and ability of various people at different levels (from headquarters to community) to carry out their tasks as effectively as possible. Therefore, Plan's aim is to identify the needs in a participatory way and develop training packages on management, technology, finance and conflict management that are appropriate to the given environment. This would enable the water and environmental sanitation sector to carry out its task as effectively as possible and contribute to overall goals of development.



Soutraab Baghri

Women making soap to sell to the local community to encourage hygiene in the community in Burkina Faso

## Measuring progress

Plan uses a combination of qualitative and quantitative methodologies to assess what progress is being made in the delivery of our projects and to determine the eventual impact of our programs. We have developed a Corporate Planning, Monitoring and Evaluation (CPME) system that allows global analysis of our work, while at the same time allowing local flexibility in how progress is determined. Each country is required to conduct a baseline survey in its communities to collect information on the coverage of sanitary facilities and access to year-round safe water (see Annex C). Two mandatory indicators have been developed to record this data but many countries also develop their own specific indicators to record additional water, sanitation and hygiene issues. One example of this is from Peru, where project intervention near Lima addressed the issue of refuse collection. Plan consequently developed an indicator on this and collected baseline information to record its status at the start of the intervention.

Each program objective is developed in a way that is SMART (Specific, Measurable, Achievable, Realistic, Time-bound) and most objectives seek to achieve their goal within three years. Plan staff undertake continuous monitoring work and evaluations of projects/programs. In addition, an internal audit process checks the cost-effectiveness, efficiency and appropriateness of interventions. Plan seeks to learn continually from its practice and that of other key organisations and agencies in the sector to improve its work.

## Conclusion

Any water and environmental sanitation program needs significant investment of hardware and software if it is to be successful and if the community involved is to be empowered with the capacity to operate, maintain, expand and replace it. Equally important is to link the community with a suitable agency able to offer support when needed in the long-term.

All too often in the past, communities have been the passive recipients of technology-heavy solutions. This paper has tried to address the range of issues involved in considering a water and environmental sanitation project from the community's perspective. It is also important that staff look beyond an individual project and address the issues associated with an entire program. This will enable them to address key issues in a holistic and systematic way. The overall impact of community involvement and a wider perspective will be that water and environment sanitation programs are sustainable in the long-term.

We cannot hope to cover every possible issue involved in the water and environmental sanitation sector. Each country and region will adapt the information provided here to its own environment. If we all then share our experiences and feed them back, we can continue to improve the quality and range of this working paper in the years to come.



# Annotated bibliography

The African Water Page <http://www.africanwater.org>

Almedom, A., Blumenthal, U. and Manderson, L. (1997) *Hygiene Evaluation Procedures. Approaches and Methods for Assessing Water and Sanitation Related Hygiene Practices*. Boston: International Nutrition Foundation for Developing Countries. The main focus of this book is the practical concerns of field personnel who want to design and conduct their own evaluations of hygiene practices but have little or no previous training in doing so.

Bolt, E. (ed) (1994). *Together for Water and Sanitation – Tools to Apply a Gender Approach: The Asian Experience*. The Hague: IRC. Part I of this manual gives a theoretical framework about women's involvement and applying a gender approach. Part II provides tools to apply a gender approach based on consolidated field experience for the various phases of a project.

Boot, M. T. (1991) *Just Stir Gently: The Way to Mix Hygiene Education with Water Supply and Sanitation*. The Hague: IRC. This book provides options and methods for integrating hygiene education with water supply and sanitation projects. The aspects covered are process of behavioural change, hygiene education planning, implementation, monitoring and evaluation, hygiene education approaches and methods, programme organisation, manpower and costs. This book is intended primarily for those responsible for the development and implementation of hygiene education components in water supply and sanitation projects.

Boot, M. T. and Cairncross, S. (ed.) (1993) *Actions Speak: The Study of Hygiene Behaviour in Water and Sanitation Projects*. The Hague: IRC. The outcome of a workshop on the measurement of hygiene behaviour held in 1991, it takes the papers and discussions from that workshop as the basis for a comprehensive analysis of the ways that hygiene behaviour can be studied.

Brikké, F. (1993) *Management of Operation and Maintenance in Rural Drinking Water Supply and Sanitation – a Resource Training Package*. Geneva: WHO. This document and the training activities derived from its use are intended for management staff concerned with the challenging tasks of how to organise effective operation and maintenance services in water supply and sanitation programmes.

Cairncross, S. and Feachem, R. G. (1993) *Environmental Health Engineering in the Tropics: An Introductory Text*. Chichester: John Wiley and Sons, 2nd edition. This book describes the infectious diseases in tropical and developing countries and the measures that may be used effectively against them. The second edition includes information on composting, the safe re-use of wastes and low-cost sewerage as well as policy and the strategies for implementing water and sanitation programmes.

Cairncross, S. and Kochar, V. (ed.) (1994) *Studying Hygiene Behaviour: Methods, Issues and Experiences*. New Delhi: Sage Publications. This book deals with general theoretical and empirical issues relating to research methods for studying hygiene behaviour, educational interventions to change hygiene behaviour and the responses of communities to such programmes.

Clark, L. (1992) *The Field Guide to Water Wells and Boreholes*. Chichester: John Wiley and Sons. This manual is intended to be a practical guide to the principles involved in the design and construction of boreholes and wells, and a source book of information useful to people planning ground water investigations and supervising drilling in the field.

Collins, M. R. and Graham, M. J. D. (1994) *Slow Sand Filtration – an International Compilation of Recent Scientific and Operational Developments*. Denver: American Water Works Association. This book includes research not only from the United States of America and the United Kingdom but also from Brazil, Peru and Colombia. It covers the following topics: design and construction, pre-treatment techniques for particulate removal, preozonation, process mechanisms and performances.

Curtis, V. (1998) *Happy, Healthy and Hygienic: How to set up a Hygiene Promotion Programme*. New York: UNICEF. Four mini-manuals on: Planning a Hygiene Promotion Programme; Risk Practices, Target Practices; Motivating Behaviour Change; Communicating Hygiene.

Davis, J. and Lambert, R. (1995) *Engineering in Emergencies: A Practical Guide for Relief Workers*. London: Intermediate Technology Publications. This book treats in-depth topics like the provision of water, sanitation and shelter, needs of refugees, managerial skills and personal effectiveness.

Delmas, G. and Courvallet, M. (1994) *Public Health Engineering in Emergency Situations. A Handbook for Implementing Health Programmes in Deprived Environments, in Particular in Camps of Displaced Persons*. Paris: Médecins Sans Frontières. Clear, concise, illustrated guide to site planning, water, sanitation and vector control. Glossary in English, French and Spanish, with conversion tables.

Department for International Development (1998) *Guidance Manual on Water Supply and Sanitation Programmes*. London: LSHTM/WEDC.

Duncan, M. (1996) *Low-Cost Urban Sanitation*. Chichester: John Wiley and Sons. This book covers the public health, technical, socio-economic, socio-cultural and institutional aspects of sanitation in towns in developing countries; technologies covered are VIP latrines, pour-flush toilets, septic tanks, settled sewerage.

Duncan, M. (ed.) (1996) *Low-Cost Sewerage*. Chichester: John Wiley and Sons. This book is the result of contributions to the International Conference on Low-Cost Sewerage in England in July 1995 and describes low-cost sewerage technologies and their applications in both developed and developing countries.

Duncan, M. (1997) *Design Manual for Waste Stabilisation Ponds in India*. Leeds: Lagoon Technology International. This book gives a description of waste stabilization ponds, an appropriate method of wastewater treatment in India. Guidance is given on pond monitoring and evaluation.

Environmental Health Project <http://www.ehproject.org/> Mainly USAID-funded projects - a wealth of documentation and links from this site.

- Gajanayake, S. and Gajanayake, J. (1993) Community Empowerment: A Participatory Training Manual on Community Project Development. New York: PACT Publications. A step-by-step guide to the use of participatory project development and its use in training workshops is presented clearly along with the basic rationale, sample charts, checklists and worksheets.
- Harvey, P. Baghri, S. and Reed, B. (2002) Emergency Sanitation, Assessment and Programme Design. Loughborough University: WEDC.
- IRC (2001) Keep it Working: A Field Manual to Support Community Management of Rural Water Supply. Delft: IRC. International Resource Centre (IRC) at Delft, the Netherlands. <http://www.irc.nl/>
- Jordan, T. D. (1984) A Handbook of Gravity-Flow Water Systems for Small Communities. London: Intermediate Technology Publications. Originally written for the construction of gravity-flow drinking water systems in Nepal, this is equally applicable for other locations around the world.
- Lyre, L. and Goldenberg, D. A. (1997) Improving Habitat for Children. A Handbook for Program Decisions. Woking: Plan International.
- Morgan, P. (1991) Rural Water Supplies and Sanitation. Harare: Ministry of Health. The emphasis of this report on over 15 years of research is on practical, realistic and appropriate solutions to the fundamental problems in establishing and maintaining clean water supplies in areas without ready access to a reliable source of water.
- Pickford, J. (1995) Low-Cost Sanitation: a Survey of Practical Experience. London: Intermediate Technology Publications. This book is a guide to what has been learned about providing sanitation coverage for both rural and urban low-income communities, and outlines what is appropriate, practical and acceptable.
- Plan International (1999) Principle and Domain Guidelines. Woking: Plan International.
- Plan International (2003) New Strategic Directions. Woking: Plan International.
- Rozendaal, J. A. (1997) Vector Control: Methods For Use By Individuals and Communities. Geneva: World Health Organization.
- Sanitation Connection <http://www.sanigate.net/index.php3>  
An internet-based resource that provides access to accurate and up-to-date information on technologies, institutions and financing of environmental sanitation systems in developing countries.
- Save the Children (1998) Carrying the Can, Children and Their Water Environment. London: SCF.
- Calow, R. and Nicol, A. (2003) Sustainable Livelihoods Poverty Elimination and Water. [http://www.waterandlivelihoods.org/sustainable\\_livelihood\\_s\\_and\\_water.pdf](http://www.waterandlivelihoods.org/sustainable_livelihood_s_and_water.pdf)
- Simpson-Hébert, M. and Wood, S. (1997) Sanitation Promotion Kit – Working Group on Promotion of Sanitation. Geneva: WHO. This kit includes articles on new ways of approaching sanitation issues, guidance articles, and checklists to guide the planning of particular programme elements, worksheets, lists of guiding principles and lists of the features that characterise better programmes.
- The Sphere Project (1998) Humanitarian Charter and Minimum Standards in Disaster Response. Geneva: The Sphere Project, Chapter 2 describes what people should have as a minimum standard in water supply and sanitation for their health and dignity. Agencies should strive to do better wherever possible. Within each section key indicators, guidance notes and critical issues are covered.
- UNICEF and WHO (2000) Global Water Supply and Sanitation Assessment. New York and Geneva: World Health Organization & United Nations Children's Fund.
- UNICEF's Water, Environment and Sanitation Section <http://www.unicef.org/programme/wes/> Includes online version of newsletter WATERfront and many publications available to download.
- Van Wijk-Sijbesma, C. (2001) The Best of Two Worlds? Methodology for Participatory Assessment of Community Water Services. Delft: IRC.
- Wakeman, W. (1995) Gender Issues Sourcebook for Water and Sanitation Projects. Geneva: WSSCC. This sourcebook adapts tools so that they reflect a gender analysis approach rather than a Women in Development approach in order that women, men and children can be involved with more productive and sustainable water and sanitation facilities.
- Water, Engineering and Development Centre (WEDC) at Loughborough University. <http://wedc.lboro.ac.uk>
- Water Supply and Sanitation Collaborative Council. <http://www.wsscc.org/>
- WaterAid (2000) Five Year Strategy (2000–2005). London: WaterAid.
- WaterAid (2001) Looking Back: The Long-term Impact of Water and Sanitation Projects. London: WaterAid.
- WaterAid <http://www.wateraid.org.uk> A UK charity involved in water, sanitation and hygiene-related activities. Their site has a range of useful documents on water supply, sanitation, gender and programme implementation.
- Waterlines. Appropriate Technologies for Water Supply and Sanitation. Quarterly journal from Intermediate Technology Development Group, Rugby, United Kingdom.
- Wegelin, M. (1996) Surface Water Treatment by Roughing Filters: a Design, Construction and Operation Manual. St Gallen: SKAT. This publication presents the concept, design and field experience of roughing filters applied as pre-treatment prior to slow sand-filters. It describes treatment processes that convert turbid surface water into safe drinking water.
- WHO (1991) Insect and Rodent Control Through Environment Management. A Community Action Programme. Geneva: World Health Organization.
- WHO (1997) Tools for Improving O & M performance (complete set). Geneva: WHO. Toolkit consists of various volumes including above training Package Case studies, Manual on linking technology choice with O & M, Evaluation of models of management systems.

# Annex A

## Some of the milestones at global level on water and environmental sanitation issues

**Convention on the Rights of the Child (CRC), United Nations, November 1989**

### **Article 6**

Recognises that every child has the inherent right to life and ensures to the maximum extent the survival and development of the child.

### **Article 24**

Recognises the child's right to the highest attainable standard of health through the provision of adequate nutritious foods, safe drinking water and adequate sanitation.

### **Article 29**

Recognises that the education of the child shall be directed to, inter alia, the development of respect for the natural environment.

## **'Dublin principles': Adopted at the international conference on water and the environment, Dublin, Ireland, January 1992**

The four guiding principles on water and sustainable development are:

- fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment
- water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels
- women play a central part in the provision, management and safeguarding of water
- water has an economic value in all its competing uses and should be recognised as an economic good

## 'Rio statement': Agenda 21, UNCED Earth Summit, Rio de Janeiro, Brazil, 1992

Chapter 18 Protection of the quality and supply of freshwater resources: application of integrated approaches to the development, management and use of water resources.

In this chapter the following program areas are proposed for the fresh water sector:

- integrated water resources development and management
- water resources assessment
- protection of water resources, water quality and aquatic ecosystems
- drinking-water supply and sanitation
- water and sustainable urban development
- water for sustainable food production and rural development
- impacts of climate change on water resources

## UN Millennium Development Goals, September 2000

The Millennium Development Goals are an agenda for reducing poverty and improving lives that world leaders agreed on at the Millennium Summit in September 2000. For each goal, one or more targets have been set, most for 2015, using 1990 as a benchmark. Goal 7 relates to the water sector:

### **Ensure environmental sustainability**

Targets:

- integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources
- halve by 2015, the proportion of people without access to safe drinking water and basic sanitation

## Vision 21

This is an initiative to put an end to global crisis in the water and sanitation sector. Vision 21: A Shared Vision for Hygiene, Sanitation and Water Supply and A Framework for Action, was brought out in 2000 by the Water Supply and Sanitation Collaborative Council (WSSCC). It is a picture of the future we seek to create regarding water and sanitation. The ultimate goal of Vision 21 is for all people to have safe and adequate water and sanitation and a clean and healthy environment. Unlike earlier international development targets, Vision 21 targets addressing hygiene practices, school sanitation and hygiene education.

Four components determine Vision 21:

- building on people's energy and creativity at all levels
- holistic approach
- committed and compassionate leadership and good governance
- synergy among all partners



## Vision 21 targets

By 2015

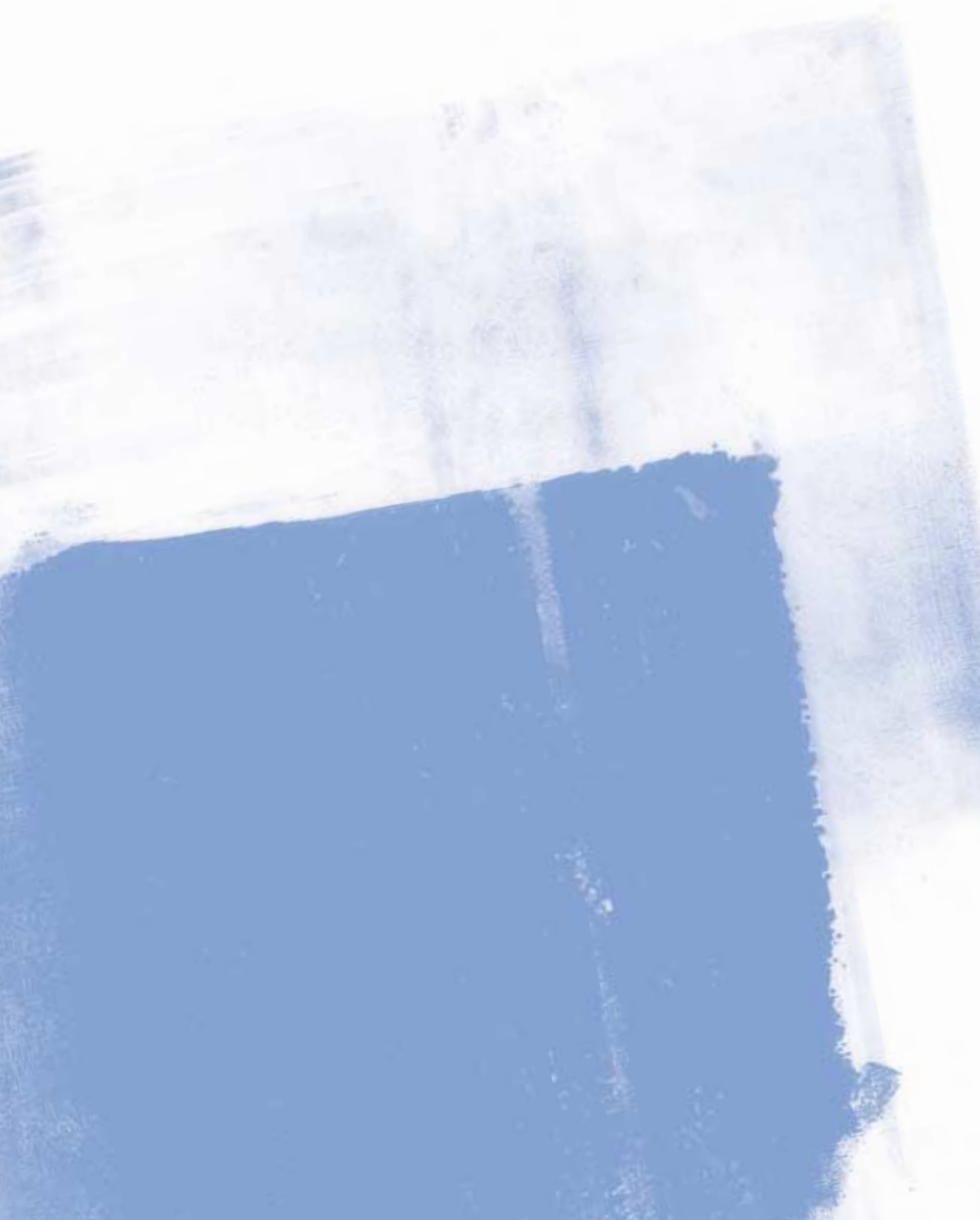
- universal public awareness of hygiene
- to reduce by one half the proportion of people without access to hygienic sanitation facilities
- to reduce by one half the proportion of people without sustainable access to adequate quantities of affordable and safe water
- 80% of primary school children educated about hygiene
- all schools equipped with facilities for sanitation and hand-washing
- diarrhoeal disease incidence reduced by 50 per cent

By 2025

- good hygiene practices universally applied
- adequate sanitation for everyone
- safe water for everyone
- all primary school children educated about hygiene
- diarrhoeal disease incidence reduced by 80 per cent

## Johannesburg Declaration, World Summit for Sustainable Development (WSSD), August–September 2002

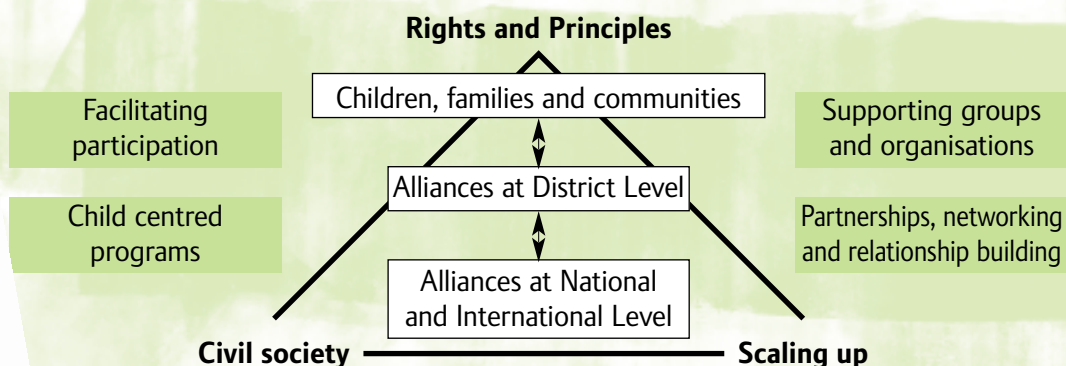
The summit not only reinvigorates previous political commitments for the water sector but also outlines a new goal for sanitation that aims to halve the proportion of people without access to basic sanitation.



## Annex B:

# Plan's program approach: child centred community development

Plan works in close cooperation with communities to make lasting improvements in the quality of life of children. Plan's approach to development is based on strengthening the capacity of communities, families and children so that they can become more active citizens, capable of meeting their own development needs through social participation. This rights-based approach is called child centred community development (CCCD):



Child centred community development enables Plan to assist children, their families and communities to work together to address the structural causes of child poverty that affect them at local, national and international levels. Through this approach, Plan's role is as facilitator and ownership of programs belongs to the communities. Therefore, it is the communities rather than Plan that identify, design, implement and monitor programs.

### The foundations of child centred community development are:

- **rights and principles:** all people have equal rights to participate in society and to access opportunities that strengthen their capacity to reach their potential. Plan's program principles (gender equity, empowerment and sustainability, integration, environmental sustainability, cooperation, institutional learning) are central to child centred community development
- **civil society:** children, families and communities living in poverty can mobilise their resources and capacity to raise their issues with local and national governments. Participatory democracy can promote public good at the community level and can limit abuses of concentrated power by promoting accountability

- **scaling up:** while the symptoms of poverty are felt most strongly at the local level, the causes are often at the national and global levels. Poverty alleviation can work only if problems are addressed at all levels. Scaling up is about creating an enabling environment where innovative activities in one community serve as a model for wider replication. The success of scaling up depends on its acceptance by mainstream institutions

## The fundamental components of child centred community development are:

- **child centred programming:** children are active participants in the development process rather than passive recipients of assistance. Failing to work with children risks misunderstanding their key issues, concerns, needs and demands and therefore implementing programs that fail to tackle the root causes of child poverty. Children must play an active role in all stages of the program cycle with due respect to local cultural and social norms and their capacity and abilities
- **facilitating participatory processes:** children, their families and communities must work together throughout the program cycle with development agencies that facilitate their access to social services, such as health and educational facilities, to find sustainable solutions to the problems they face. Development programs need to be established on local knowledge and practices to ensure that they are culturally acceptable and should concentrate on building the capacity of communities to ensure that they can become sustainable
- **partnership and networking:** child centred community development provides a framework for establishing partnerships and creating networks. It is based on the assumption that relationships between institutions can create a more powerful platform to influence policy and transform institutional structures to be more pro-poor, participatory and child-friendly. Institutions can combine their resources, experience and knowledge to work together to address concerns expressed at a community level
- **supporting groups and organisations:** the voices and concerns of people living in poverty are not normally heard in decision-making processes. The capacity of children and adults living in poverty to influence decisions and improve their circumstances is enhanced by forming their own organisations in which they can work together and speak with a common voice. One of Plan's key roles is to strengthen collective action and community solidarity by strengthening the capacity of the community-based organisations (CBOs) to operate at all levels. In this way, Plan facilitates the promotion of democratic civil society to increase a community's influence on service provision

## Annex C:

# Corporate Planning, Monitoring and Evaluation: an overview, with specific reference to impact evaluation

Plan's Corporate Planning, Monitoring and Evaluation (CPME) system provides a standard framework for program planning, monitoring and evaluation followed in all 45 of Plan's program countries. The system consists of a set of guidelines, corporate forms and tools to assist countries in carrying out each stage of the program cycle. This is assisted through the use of corporate software in the generation of baseline reports and to record program and project planning and monitoring.

The first stage of CPME is carrying out the baseline. This situation assessment in Plan's partner communities is carried out every 3–5 years. Both corporate and locally-developed indicators are a key part of the baseline exercise (which also includes secondary data analysis and children's consultation), helping both to provide a snapshot of Plan working areas at a point in time and to enable the setting of targets in program planning.

The planning stage includes the development of Country Strategic Plans (5–10 year periods) that become operational through country programs (3–5 years). Country programs set SMART targets (based on indicators) and detail what will be done (outputs produced) to achieve these targets. The system links participatory community planning (community development outlines) through to country strategic plans.

Monitoring is carried out at both the individual project and program level. Software (Program and Projects Module) enables the on-going monitoring of expenditure, the production of outputs and the location of these outputs. A mid-term review of country programs reviews access to these outputs and progress towards targets, including qualitative studies such as beneficiary assessment.

The evaluation component focuses on the evaluation of all country programs under a standard reporting framework aimed at facilitating global learning. Key evaluation issues addressed are relevance, efficiency, effectiveness, impact and sustainability. Inputs into the evaluation exercise are baseline gap analysis, monitoring data, qualitative data and comparative and contextual data. Both the baseline and the program evaluations together inform the next round of planning – and so the program cycle continues.

## CPME and impact evaluation

In attempting to define impact and to develop an approach to assess impact, it is important that we are aware of what is already being done within the CPME system and what stage we are at.

The baseline exercise has the potential to be a key source of information in an impact assessment exercise (and is a key input in the program evaluation process). The first Plan-wide baseline was carried out in all Plan countries beginning in 1998. The second baseline exercise began in some countries from September 2002 and will be completed by all Plan countries over the next 2–3 years.

Over the next 2–3 years, most countries will also be completing country programs (each country's activities are usually defined by, on average, five country programs that each last between 3–5 years). As mentioned above, the evaluation component requires that all country programs are evaluated and are reported under a standard format. By June 2003, we saw the first program evaluations (on average five per country) and over the next 2–3 years we will see program evaluations from all Plan countries. Prior to the introduction of CPME, evaluations had been carried out on an ad hoc basis in Plan and were often related to grant-funded projects.

The evaluation component includes 'impact' as one of the five key evaluation issues (see above) that need to be addressed in the evaluation. Impact, here, is defined as 'changes in people's lives (children, families and communities) brought about by the program'. The evaluation component recognises the difficulty in assessing impact in program evaluation and emphasises the need to include 'a high level of contextual understanding of the program and the requirement to cross-check (triangulate) findings'.

Analysis of impact focuses on three key areas:

1. The positive changes in people's lives
2. The negative changes in people's lives
3. The level to which it is possible to conclude that these changes in people's lives can be attributable to the country program

Four main information sources are recommended to inform the evaluation of program impact. These are:

1. Gap analysis of baseline surveys
2. Monitoring results analysis
3. Comparative and contextual analysis
4. Qualitative studies

The process of triangulation (cross-checking) of different data sources in arriving at evaluation findings is emphasised throughout the evaluation component.

The emphasis throughout the evaluation component section on assessing program impact is that to evaluate the impact of programs implemented by NGOs properly is very difficult. Because of this, the evaluation component states the need to be cautious in the claims made in an assessment of program impact, and only to draw conclusions that are supported by different data sources. At the same time, however, it stresses the importance of attempting to address the issue of program impact because ‘...the argument that Plan programs do have an impact on the lives of children, their families and their communities is, ultimately, the justification for the work we do – and as such we need to ensure that we try and show as best as possible whether this is the case or not’.

